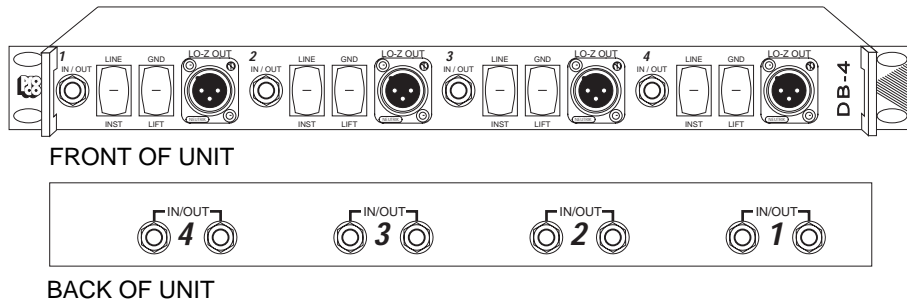


DB-4

FEATURES

4-CHANNEL DIRECT BOX



- Floating Transformer-Balanced XLR Output for Maximum Isolation
- 4 Independent Channels for 4 Keyboards, Drum Machine Outputs, etc.
- 3 IN/OUT Jacks per Channel for Convenient Loop-Through
- LINE Mode Handles Signal Levels to +34 dBv
- GND/LIFT Switch Eliminates Hum and Buzz
- Rugged "Uni-box™" Construction for Super Strength and Shielding
- Passive Design Requires No Batteries or Phantom Power.

DESCRIPTION

Reproducing the wide dynamic range and ultra-low distortion of today's high-tech music making gear can be a real hassle for a sound system. The Pro Co Model DB-4 Quad Direct Box solves the problem of getting those super-clean signals from the stage to the P.A. or recording mixer.

The DB-4 provides four independent "direct-box" channels in a convenient single space (1 3/4", 44.45mm) rack-mounting package. Ideal for the multi-keyboardist, it is equally well suited to any application requiring the interface of unbalanced high-impedance equipment and balanced low-impedance mixer inputs.

Unlike the traditional "mic on the speaker" approach, the direct approach delivers the clarity and punch that a modern sound demands. The full richness and character of the instruments is preserved because the distortion and coloration of speakers and microphones has been eliminated.

The versatile design of the DB-4 allows easy integration with any high-quality audio system. Three parallel-connected IN/OUT jacks

for unbalanced signals make "patching in" at virtually any stage of the signal path a simple task. Signals may be taken straight from the instruments (and effects devices) themselves, or from sub-mixer outputs (if you have to run out of mixer channels). Of course, multiple DB-4's can be used when separate outputs from each instrument or effect are needed.

The DB-4's rugged 16-gauge steel and aluminum "Uni-box™" construction enclosure is finished in a durable black texture powder coat finish with black anodized aluminum side channels. Easy-to-read control graphics are incorporated into the Lexan® front and back panel overlays. Inside, the specially designed transformers combine superb audio quality with unsurpassed noise rejection. The DB-4 can be mounted in any standard 19" (482.6mm) rack.

CONTROLS

IN/OUT:

Three phone jacks wired in parallel for signal input and "loop-through." For convenience there is a front-panel jack and a pair of rear-panel jacks (for use with rack-mounted equipment). Any IN/OUT jack can be used as an input from a source or as a loop-through output as required.

(Note: The DB-4 is not a mixer and should not be used to mix signals together. One signal source should be connected to each channel.) Input impedance: INST-greater than 100 kohm; LINE-approx. 8 kohm. Handle s signals of up to 69V RMS.

LINE/INST:

LINE position inserts 20 dB pad between the three IN/OUT jacks and the DBT-1 Transformer for increased level handling capability. Also provides proper source impedance to optimize frequency and transient response. INST position bypasses pad and is used for high-impedance sources such as guitars, basses and some older keyboards. (LINE/INST switch affects only LO-Z OUTPUT level.)

LO-Z OUTPUT:

Male 3-pin XLR-type connector provides balanced floating low-impedance output (pin 2 hot). Connect to mixing board microphone channel input. Recommended load impedance: 1.0 kohm.

GND/LIFT:

GND position connects INPUT and LO-Z OUTPUT grounds together. LIFT position "floats" LO-Z OUTPUT. Used to reduce hum and buzz by providing proper grounding for various conditions



PRO CO MODEL DB-4 DIRECT BOX

TYPICAL PERFORMANCE

All measurements made with 20 kohm source feeding IN/OUT and 1.0kohm load on LO-Z OUTPUT to simulate typical "real world" instrument pick-up and mic preamp. 0dB ref. = .775 volt.

FREQUENCY RESPONSE:

20Hz-20kHz, +/- .5dB @ -15dBv output.
-3dB @ approximately 85kHz.

TOTAL HARMONIC DISTORTION:

Less than .03% 20Hz-20kHz @ -30dBv output.
Less than .1% 30Hz-20kHz @ -15dBv output.
Less than .25% 20Hz-20kHz @ -15dBv output.

PHASE RESPONSE:

Less than -18 degrees @ 20kHz (ref. 1.0kHz).

RISE TIME:

Less than 4.5 microseconds (2.0kHz square wave, 10%-90%).

INPUT IMPEDANCE:

Greater than 130kohm @ 1.0kHz (INST mode).
Greater than 105kohm @ 10kHz (INST mode).
Nominal source impedance is 20kohm.
Approximately 8.2kohm (SPKR mode).
Nominal source impedance is 0ohm.

OUTPUT IMPEDANCE:

Less than 210ohm @ 1.0kHz.
Less than 215ohm @ 10kHz.
Nominal load impedance is 1.0kohm.

VOLTAGE STEP DOWN:

Less than 22dB @ 1.0kHz (INST mode).
SPKR mode attenuates signal by 20dB.

MAXIMUM INPUT LEVEL FOR 1% THD:

+16 dBv (INST mode), +34 dBv (LINE mode) @ 20Hz.
+21 dBv (INST mode), +41 dBv (LINE mode) @ 30Hz.
+26 dBv (INST mode), +46 dBv (LINE mode) @ 50Hz.

ENGINEERING SPECIFICATIONS

The signal splitting/impedance matching unit shall be suitable for interfacing four (4) unbalanced high-or-low-impedance sources to four (4) balanced or floating low-impedance (1.0kohm nominal) microphone preamplifier inputs. There shall be four (4) channels with features as follows:

There shall be one (1) 1/4" (6.3mm) 2-Conductor phone jack linked in parallel to two (2) rear-panel 1/4" (6.3mm) 2-Conductor phone jacks. Any of these may be used as an input or as a loop-through output as required, as long as only one (1) source is connected to each channel. There shall be a front-panel switch for a 20 dB attenuator to accommodate line-level sources. There shall be a transformer-isolated low-impedance output from a front-panel 3-pin male XLR-type connector. The transformer shall be a ProCo DBT-1 Direct Box Transformer. The primary electrostatic shield shall be connected to the source input ground. The secondary electrostatic shield shall be connected to pin 1 of the low-impedance XLR output. There shall be a ground-lift switch to allow the shields to be connected together or isolated as required. The XLR output connector shall be wired with pin 2 "hot" or "in-phase" with respect to the input, and pin 3 "cold" or "anti-phase". There shall be a connection between the enclosure and the source ground of Channel 1. If the enclosure is mounted in a properly grounded 19" EIA rack this connection may be removed. There shall be no connection between the enclosure and Channels 2, 3 and 4.

The enclosure shall be constructed in the ProCo "Uni-box™" design with 16-gauge steel black zinc finish top and bottom plates, 1/8" black anodized aluminum front plates, back plates and side channels. Control functions shall be identified by a printed Lexan® front and back panel overlay. Switches shall be of the miniature "rocker" type and shall be recessed. The enclosure shall be provided with 2 miniature handles mounted on the front plate. The enclosure shall be suitable for standard 19" EIA rack mounting. The dimensions of the unit shall be approximately 4-3/4" D by 19" W by 1-3/4" H. (120.7mm D by 482.6mm W by 44.5mm H).

The signal splitting/impedance matching unit shall be a ProCo Multiface DB-4 Quad Direct Box.

THE PRO CO DBT-1 TRANSFORMER

The DBT-1 is a carefully designed, custom-built impedance-matching transformer whose characteristics are optimized for use with high-impedance sources such as electric bass guitars. It is also very applicable to other unbalanced sources such as keyboard instruments.

Special winding techniques and a high-permeability (80% nickel) core lamination preserve full frequency response while minimizing signal losses and other "loading" effects. Separate electrostatic shields for primary (input) and secondary (output) windings reduce capacitive coupling of ground-borne electrical noise between stage amps and PA or recording mixers, eliminating annoying 60 Hz hum and buzz. The source impedance of the DBT-1 is very similar to that of a low-impedance microphone to ensure proper matching to the input circuitry of the mixer. The result is clean transient response (no overshoot or ringing) and low distortion even at low frequencies and high input levels.

